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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/553,457	10/17/2005	Thomas Bohm	327_106	6979

20874 7590 01/31/2008

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EXAMINER	
KASTURE, DNYANESH G	

ART UNIT	PAPER NUMBER
4147	

MAIL DATE	DELIVERY MODE
01/31/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/553,457	BOHM ET AL.	
	Examiner	Art Unit	
	DNYANESH KASTURE	4147	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 October 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *5-8* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *5,7 and 8* is/are rejected.

7)☒ Claim(s) *6* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *17 October 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *17 Oct 05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:

2. Page 3, Paragraph [0007] does not state whether the second high vacuum pump and the primary pump are on or off when the first high vacuum pump is turned on in the first and second modes of operation. Mentioning the status of the other two pumps would clarify the modes of operation.

3. Page 5, Paragraph [0021] does not state whether the second high vacuum pump and the primary pump are on or off when the first high vacuum pump is turned on in the first and second modes of operation. Mentioning the status of the other two pumps would clarify the first operating mode.

4. Page 5, Paragraph [0022] does not state whether the second high vacuum pump and the primary pump are on or off when the first high vacuum pump is turned on in the first and second modes of operation. Mentioning the status of the other two pumps would clarify the second operating mode.

Appropriate correction is required.

5. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: Leak detector for a vacuum apparatus.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Becker (US Patent 3,520,176 A) and in view of Alloca et al (US Patent 4,505,647 A).

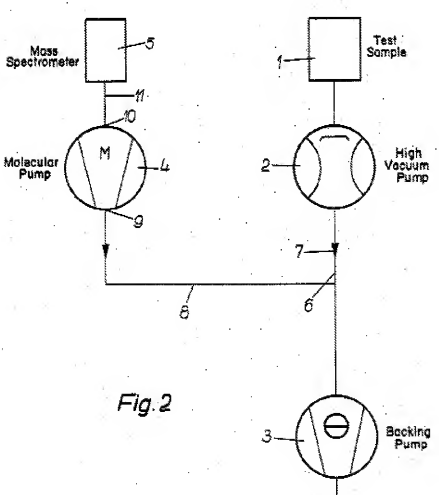

Fig. 2

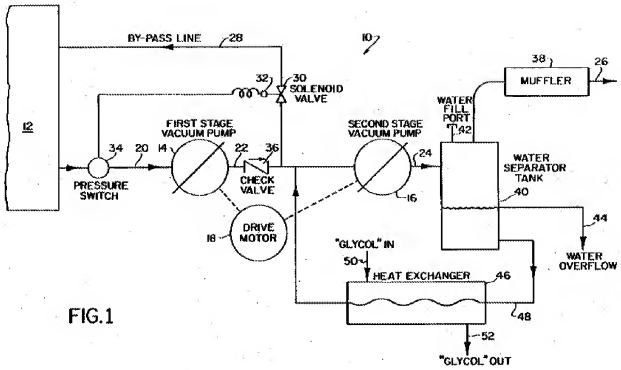

FIG.1

8. In Re claim 5, with reference to Figure 2 depicted above, Becker discloses a Leak detector (column 1, line 15) comprising:

- a first high vacuum pump (2) having an entry side which is inherently connected to an inlet of the leak detector (1)
- a second high vacuum pump (4) having an entry side which is connected to a mass spectrometer (5)
- a primary pump (3) having an entry side which is connected to the exit sides (9) and (7) of the first (2) and second (4) high vacuum pumps by conduits (6) and (8)
- there are no throttles or valves between the means connecting the first high vacuum pump (2) and the inlet of the leak detector (1)

9. However, Becker does not disclose a bypass with a first valve and a second valve between the first high vacuum pump and the primary pump.

10. Nevertheless, with reference to Figure 1 depicted above, Alloca et al discloses a vacuum pumping system comprising:

- a first high vacuum pump (14) having an entry side which is inherently connected to a vacuum chamber (12) in a non-throttled manner without valving
- a bypass (28) with first valve (30) connecting vacuum chamber (12) to the primary pump (16)
- a second valve (36) provided between the exit side of the first high vacuum pump (14) and a primary pump (16)

11. It would have been obvious to a person having ordinary skill in the art at the time of the invention to:

- modify the leak detector of Becker to include a bypass line with a first valve connecting the inlet of the leak detector to the primary pump as taught by Alloca et al for the purpose of relieving interstage pressure, thereby lowering the power draw on the drive motor as taught by Alloca et al as stated in column 2, line 67 to column 3 line 2.
- further modify the leak detector of Becker to include a second valve provided between the exit side of the first high vacuum pump and a primary pump as taught by Alloca et al for the purpose of preventing back pressure on the first high vacuum pump as taught by Alloca et al as stated in column 3, lines 20-21.

12. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Becker (US Patent 3,520,176 A) and Alloca et al (US Patent 4,505,647 A) as applied to claim 5 and further in view of Grosse Bley et al (US Patent 5,585,548 A).

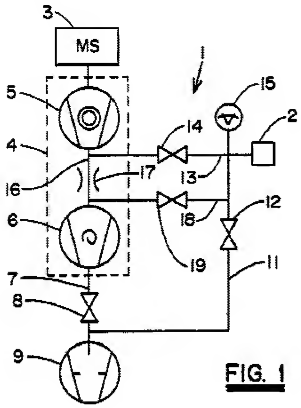

FIG. 1

13. In Re claim 8, Becker modified by Alloca et al as applied to claim 5 discloses all the claimed limitations except for the second high vacuum pump further comprising at least one intermediate inlet connected to the exit side of the first high vacuum pump via a valve, said valve being dependently controlled based upon the pressure of the exit side of the first high vacuum pump.

14. However, with reference to Figure 1 depicted above, Grosse Bley et al discloses a leak detection unit (1) comprising:

- a second high vacuum pump (4) with two stages (5) and (6)
- intermediate inlet (13) with valve (14)

- intermediate inlet (18) with valve (19)
- valves (14) and (19) are initially closed, and are "controlled" by opening them once forevacuum pressure ("pressure on the exit side") has been attained (see column 3, lines 29-36)

15. It would have been obvious to a person having ordinary skill in the art at the time of the invention to further modify the Leak detector in Becker modified by Alloca et al, as applied to claim 5, to include the intermediate inlets and valves from the second high vacuum pump as taught by Grosse Bley et al for the purpose of increasing the sensitivity of leak detection as taught by Grosse Bley et al as stated in Column 3, line 37.

16. Claims 5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Becker (US Patent 3,520,176 A) and Alloca et al (US Patent 4,505,647 A) and further in view of Mugele et al (US Patent 4,225,288 A).

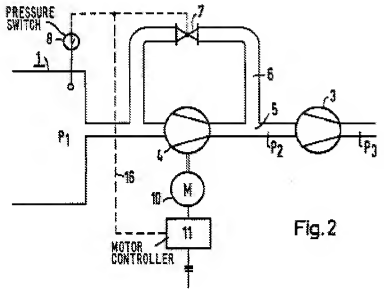

Fig. 2

17. In Re claim 5, as discussed above, Becker discloses a Leak detector (column 1, line 15) comprising:

- a first high vacuum pump (2) having an entry side which is inherently connected to an inlet of the leak detector (1)
- a second high vacuum pump (4) having an entry side which is connected to a mass spectrometer (5)
- a primary pump (3) having an entry side which is connected to the exit sides (9) and (7) of the first (2) and second (4) high vacuum pumps by conduits (6) and (8)
- there are no throttles or valves between the means connecting the first high vacuum pump (2) and the inlet of the leak detector (1)

18. However, Becker does not disclose a bypass with a first valve.

19. Nevertheless, with reference to Figure 2 depicted above, Mugele et al discloses a pump set comprising:

- a first high vacuum pump (4) having an entry side which is inherently connected to a vacuum chamber (1) in a non-throttled manner without valving
- a bypass (6) with first valve (7) connecting vacuum chamber (1) to the primary pump (3)

20. It would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the leak detector of Becker to include a bypass line with a first valve connecting the inlet of the leak detector to the primary pump as taught by Mugele et al for the purpose of avoiding inadmissibly high power consumption as taught by Mugele et al as stated in column 3, line 22.

21. Further in Re claim 5, Becker modified by Mugele et al as discussed above meets all the claimed limitations except for a second valve between the first high vacuum pump and the primary pump.

22. Nevertheless, Alloca et al discloses a vacuum pumping system comprising:

- a first high vacuum pump (14) having an entry side which is inherently connected to a vacuum chamber (12) in a non-throttled manner without valving
- a second valve (36) provided between the exit side of the first high vacuum pump (14) and a primary pump (16)

23. It would have been obvious to a person having ordinary skill in the art at the time of the invention to further modify the leak detector of Becker modified by Mugele et al to include a second valve provided between the exit side of the first high vacuum pump and a primary pump as taught by Alloca et al for the purpose of preventing back

pressure on the first high vacuum pump as taught by Alloca et al as stated in column 3, lines 20-21.

24. In Re claim 7, Mugele et al discloses in column 3, lines 14-22 that the first high vacuum pump (4) is activated by starting motor (10) when the pressure has reduced below a "limit value" of 40 Torr, after the first valve (7) has been opened enabling the primary pump (3) to achieve a sufficient vacuum.

Allowable Subject Matter

25. Claim 6 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

26. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Myneni (US Patent 5,703,281 A) discloses a high sensitivity helium leak detector.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DNYANESH KASTURE whose telephone number is (571)270-3928. The examiner can normally be reached on Mon-Fri, 9:00 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, George Nguyen can be reached on (571) 272-4491. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Dnyanesh Kasture
Examiner
Art Unit 4147

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Supervisory Patent Examiner, Art Unit 4147